

I Claim:

1. A prosthesis assembly to replace a cephalad portion of a left natural facet joint on a vertebral body and a cephalad portion of a right natural facet joint on 5 a vertebral body, the prosthesis assembly comprising
 - a left prosthesis body accommodating fixation to the vertebral body at or near a left pedicle and without support by a lamina,
 - an artificial left facet joint structure 10 carried by the left prosthesis body adapted and configured to replace a cephalad portion of the left natural facet joint,
 - a right prosthesis body accommodating fixation to the vertebral body at or near a left pedicle and 15 without support by a lamina, and
 - an artificial right facet joint structure carried by the right prosthesis body adapted and configured to replace a cephalad portion of the right natural facet joint.
- 20 2. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is fixed to the respective one of the left and right prosthesis bodies.
- 25 3. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is fixed to the respective one of the left and right prosthesis bodies by an adhesive or cement.
- 30 4. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is fixed to the respective one of the left and right prosthesis bodies by mechanical attachment.
- 35 5. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and

right facet joint structures is removably carried by the respective one of the left and right prosthesis bodies.

6. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
5 right facet joint structures is removably attached to the respective one of the left and right prosthesis bodies by frictional engagement.

10 7. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is removably attached to the
respective one of the left and right prosthesis bodies by
a Morse taper.

15 8. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures comprises an insert fitted
to the respective one of the left and right prosthesis
bodies.

20 9. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures comprises an insert fitted
by frictional engagement to the respective one of the
left and right prosthesis bodies.

25 10. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures comprises an insert fitted
by a Morse taper to the respective one of the left and
right prosthesis bodies.

30 11. A prosthesis assembly according to claim 1
wherein at least one of the artificial facet
joint structures comprises a removable insert fitted to
the respective one of the left and right prosthesis
bodies.

35 12. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures pivots with respect to the

respective one of the left and right prosthesis bodies.

13. A prosthesis assembly according to claim 1
wherein at least one of the prosthesis bodies
includes a fastening element installed within the
5 vertebral body at or near a pedicle.

14. A prosthesis assembly according to claim 13
wherein the fastening element includes a screw
installed within the vertebral body at or near a pedicle.

15. A prosthesis assembly according to claim 13
10 wherein the fastening element includes a stem
installed within the vertebral body at or near a pedicle.

16. A prosthesis assembly according to claim 13
wherein the fastening element including means
for resisting rotation after installation in the
15 vertebral body.

17. A prosthesis assembly according to claim 1
wherein at least one of the prosthesis bodies
is fixed to the vertebral body by an adhesive or cement.

18. A prosthesis assembly according to claim 1
20 wherein the prosthesis body includes a bony in-
growth material.

19. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is adapted and configured to
25 replace a natural articular process of a cephalad portion
of the respective one of the left and right natural facet
joints.

20. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
30 right facet joint structures is adapted and configured to
replace a natural articular process of a cephalad portion
of the respective one of the left and right natural facet
joints after removal of at least some of a lamina from
the vertebral body.

35 21. A prosthesis assembly according to claim 1

5 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a cephalad portion of the respective one of the left and right natural facet joints after removal of at least part of an accessory process from the vertebral body.

10 22. A prosthesis assembly according to claim 1 wherein at least one the artificial let and right facet joint structures is adapted and configured to replace a natural articular process of a cephalad portion of the respective one of the left and right natural facet joints after removal of at least part of a transverse process from the vertebral body.

15 23. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a cephalad portion of the respective one of the left and right natural facet joints after removal of at least part of a pedicle from

20 the vertebral body.

25 24. A prosthesis assembly according to claim 1 wherein at least one of the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a cephalad portion of the respective one of the left and right natural facets joint after removal of at least some of the natural articular process from the vertebral body.

30 25. A prosthesis assembly according to claim 1 wherein at least the artificial left and right facet joint structures is adapted and configured to replace a natural articular process of a cephalad portion of the respective one of the left and right natural facet joints after removal of at least some of the natural articular process and of at least some of a lamina from

35 the vertebral body.

26. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is adapted and configured to
replace a natural articular process of a cephalad portion
5 of the respective one of the left and right natural facet
joints after removal of at least some of the natural
articular process and of at least some of an accessory
process from the vertebral body.

10 27. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is adapted and configured to
replace a natural articular process of a cephalad portion
of the respective one of the left and right natural facet
joints after removal of at least some of the natural
15 articular process and of at least part of a transverse
process from the vertebral body.

20 28. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is adapted and configured to
replace a natural articular process of a cephalad portion
of the respective one of the left and right natural facet
joints after removal of at least some of the natural
articular process and of at least part of a pedicle from
the vertebral body.

25 29. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is adapted and configured to
replace a natural articular process of a cephalad portion
of the respective one of the left and right natural facet
30 joints, and

wherein at least one of the prosthesis bodies
is adapted and configured to replace at least some of a
lamina of the vertebral body.

35 30. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and

right facet joint structures is adapted and configured to replace a natural articular process of a cephalad portion of the respective one of the left and right natural facet joints, and

5 wherein at least one of the prosthesis bodies is adapted and configured to replace at least some of a mamillary process of the vertebral body.

31. A prosthesis assembly according to claim 1 wherein at least one of the prosthesis bodies 10 is adapted and configured to replace at least some of a lamina of the vertebral body.

32. A prosthesis assembly according to claim 1 wherein at least one of the prosthesis bodies 15 is adapted and configured to replace at least some of a mamillary process of the vertebral body.

33. A prosthesis assembly according to claim 1 wherein a connecting member joins the left and right prosthesis bodies without support by a lamina.

34. A prosthesis assembly according to claim 1 20 wherein at least one of the left and right prosthesis bodies includes a fastening element installed within the vertebral body at or near a pedicle, and

wherein the at least one left and right prosthesis body includes a caudal region that extends 25 from the fastening element toward a cephalad portion of the respective one of the left and right natural facet joints.

35. A prosthesis according to claim 34 30 wherein the respective one of the artificial left and right facet joint structures is carried on the caudal region and is adapted and configured to replace a natural articular process of a cephalad portion of the respective one of the left and right natural facet joints.

35 36. A prosthesis assembly according to claim 35

wherein the respective one of the artificial left and right facet joint structures is fixed to the caudal region.

37. A prosthesis assembly according to claim 35
5 wherein the respective one of the artificial left and right facet joint structures is fixed to the caudal region by an adhesive or cement.

38. A prosthesis assembly according to claim 35
10 wherein the respective one of the artificial left and right facet joint structures is fixed to the caudal region by mechanical attachment.

39. A prosthesis assembly according to claim 35
wherein the respective one of the artificial left and right facet joint structures is removably
15 carried by the caudal region.

40. A prosthesis assembly according to claim 35
wherein the respective one of the artificial left and right facet joint structures is removably attached to the caudal region by frictional engagement.

20 41. A prosthesis assembly according to claim 35
wherein the respective one of the artificial left and right facet joint structures is removably attached to the caudal region by a Morse taper.

42. A prosthesis assembly according to claim 35
25 wherein the respective one of the artificial left and right facet joint structures comprises an insert fitted to the caudal region.

43. A prosthesis assembly according to claim 35
wherein the respective one of the artificial
30 left and right facet joint structures comprises an insert fitted by frictional engagement to the caudal region.

44. A prosthesis assembly according to claim 35
wherein the respective one of the artificial left and right facet joint structures comprises an insert
35 fitted by a Morse taper to the caudal region.

45. A prosthesis assembly according to claim 35
wherein the respective one of the artificial
facet joint structures comprises a removable insert
fitted to the caudal region.

5 46. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures pivots with respect to the
respective one of the left and right prosthesis bodies.

10 47. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is adapted and configured to
articulate with a caudal portion of the respective one of
the left and right facet joints of an adjoining vertebral
body.

15 48. A prosthesis assembly according to claim 1
wherein at least one of the artificial left and
right facet joint structures is made of at least one
selected prosthetic material.

20 49. A prosthesis assembly according to claim 1
wherein the selected prosthetic material
includes polyethylene, rubber, tantalum, titanium, chrome
cobalt, surgical steel, bony in-growth material, ceramic,
artificial bone, or a combination thereof.

25 50. A method of replacing, on a vertebral body,
all or a portion of a cephalad portion of left natural
facet joint and all or a portion of a cephalad portion of
a right natural facet joint using the prosthesis assembly
defined in claim 1 to provide improved support for the
spinal column, the method comprising the steps of

30 (i) removing all or a portion of the cephalad
portions of the left and right natural facet joints from
the vertebral body, and

35 (ii) fixing the prosthesis assembly as defined
in claim 1 to the vertebral body to replace both removed
cephalad portions of the left and right natural facet

joints with the artificial facet joint structure.

51. A method according to claim 50

further including a step of removing at least
part of an accessory process from the vertebral body.

5 52. A method according to claim 50

further including a step of removing at least
part of a transverse process from the vertebral body.

53. A method according to claim 50

further including a step of removing at least
10 part of a pedicle from the vertebral body.